

REMARKS

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

Upon entry of this amendment, claims 1-25 will be pending. By this amendment, claims 1, 8, and 15 have been amended; and claims 22-25 have been added. No new matter has been added.

§ 103 Rejection of Claims 1, 2, 4-9, 11-16, and 18-21

In Section 3 of the Office Action, claims 1, 2, 4-9, 11-16, and 18-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shikakura (U.S. Patent No. 5,594,598) in view of Akiyama *et al.* (U.S. Patent No. 5,812,663; hereinafter referred to as “Akiyama”). Claims 1, 8, and 15 have been amended to address the rejection.

In the Background section of the Specification, it was indicated that “[w]hen audio data is encrypted corresponding to DES (Data Encrypting Standard), after audio data is compressed, it is encrypted. Since an encrypting key used in the encrypting process has around 64 bits (= 56 bits + 8 bits (CRC) (thus, 8 bytes)), when audio data is encrypted with the 64-bit key, because of the data unit of the compressing process, fractions take place. For example, in the case of audio data of an MD, since $212 / 8 = 26.5$, when the encrypting process is performed 27 times, data becomes insufficient.” *Specification, page 3, line 19 to page 4, line 1.*

To compensate for the data insufficiency, dummy data can be added. “However, a data loss of around 2 % ($4 / 212 = 0.019$) takes place. When 215 bytes are selected as the compression data unit, dummy data of seven bytes is required. The data loss amounts to around 3.3 % ($7 / 215 = 0.0326$). When a memory card of 64 Mbytes is used, the data loss of 3.3 % is

equivalent to data of 2.1 Mbytes. At the present time, such a data loss is a critical problem in such an expensive memory card.” *Specification, page 4, lines 4-12.* Although the data loss problem with dummy data can be alleviated somewhat by using the dummy data “as sub-data having secondary information, since it is [difficult] to manage dispersed data, this method will not be effective”. *Specification, page 4, lines 13-16.*

The structure of independent claim 1, as presented herein, is configured to overcome the above-described problem by providing a non-volatile recording medium for recording a digital audio signal comprising:

a block-segmenting element to segment the digital audio signal into a plurality of blocks, each block having a predetermined data length selected to provide a maximum recordable time on the recording medium and a maximum encryptable data length of the digital audio signal,

wherein the selection of said predetermined data length provides an encryption process substantially free of fractions so that substantially less space of the non-volatile recording medium is wasted; and

a compressor to compress the digital audio signal at a compression ratio selectable in a predetermined range.

(emphasis added)

In summary, the block-segmenting element segments the digital audio signal into blocks, each block having a predetermined data length, where the selection of the predetermined data length provides an encryption process substantially free of fractions so that substantially less space of the non-volatile recording medium is wasted. Therefore, the above-described data insufficiency and fraction problem in the conventional encryption process can be overcome by the limitations specified in claim 1.

Shikakura discloses “coding means [for] compressing the information at a compression ratio which is variable and outputting the compressed information, ... [and] controlling means for controlling the compression ratio of the coding means”. *Shikakura, column 2, lines 28-36.* Further, it was indicated in the Office Action that “Shikakura does not disclose ... each block provide a maximum encryptable data length of the digital audio signal”.

Akiyama discloses that “as a processing for the partial data which does not reach the block length, a predetermined bit pattern can be inserted into the data until the data to be enciphered reaches one block length.” *Akiyama, column 5, lines 24-27.* This indicates that Akiyama teaches padding a block having “data insufficiency” with dummy data of “a predetermined bit pattern”, which is described in the Background of the Specification as having a data-insufficiency and fraction problem.

Therefore, Shikakura and Akiyama, in combination or individually, fail to teach or suggest a block-segmenting element that segments the digital audio signal into blocks, each block having a predetermined data length, where the selection of the predetermined data length provides an encryption process substantially free of fractions so that substantially less space of the non-volatile recording medium is wasted.

Based on the foregoing discussion, claim 1 should be allowable over the combination of Shikakura and Akiyama. Furthermore, the limitations of independent claims 8 and 15 closely parallel, and are substantially similar to, the limitations of independent claim 1. Thus, claims 8 and 15 should also be allowable over the combination of Shikakura and Akiyama. Since claims 2 and 4-7 depend from claim 1, claims 2 and 4-7 should also be allowable over the combination of Shikakura and Akiyama. Since claims 9 and 11-14 depend from claim 8, claims 9 and 11-14 should also be allowable over the combination of Shikakura and Akiyama. Since claims 16 and

18-21 depend from claim 15, claims 16 and 18-21 should also be allowable over the combination of Shikakura and Akiyama.

Accordingly, it is submitted that the Examiner's rejection of claims 1, 2, 4-9, 11-16, and 18-21 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§103 Rejection of Claims 3, 10, and 17

In Section 4 of the Office Action, claims 3, 10, and 17 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Shikakura and Akiyama as applied to claim 1 above, and further in view of Takahashi *et al.* (U.S. Patent No. 6,453,120; hereinafter referred to as "Takahashi").

Since claims 3, 10, and 17 depend from claims 1, 8, and 15, respectively, each of claims 3, 10, and 17 includes all the limitations of claims 1, 8, and 15, respectively. Therefore, based on the foregoing discussion regarding claims 1, 8, and 15, claims 3, 10, and 17 should be allowable over the combination of Shikakura and Akiyama.

Further, it was indicated that Takahashi discloses compression rate selectable from among, for example, 1/4, 1/8, 1/16, and 1/32. Therefore, it is maintained that Shikakura, Akiyama, and Takahashi, in combination or individually, fail to teach or suggest a block-segmenting element that segments the digital audio signal into blocks, each block having a predetermined data length, where the selection of the predetermined data length provides an encryption process substantially free of fractions so that substantially less space of the non-volatile recording medium is wasted.

Accordingly, it is submitted that the Examiner's rejection of claims 3, 10, and 17 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

Newly-added Claims 22-25

The structure of independent claim 22 includes:

"a memory means having a table for deciding the predetermined data length of which the digital audio signal is block-segmented corresponding to the maximum recordable time and the data length of which the compressed digital audio signal is encrypted,

wherein the decision of said predetermined data length provides an encryption process substantially free of fractions so that substantially less space of the non-volatile recording medium is wasted".

Independent claim 22 also includes a limitation of having a table for deciding the predetermined data length, where the decision of the predetermined data length provides an encryption process substantially free of fractions so that substantially less space of the non-volatile recording medium is wasted. Thus, based on the foregoing discussion, claim 22 should be allowable over the cited prior art references. Furthermore, since claims 23-25 depend from claim 22, claims 23-25 should also be allowable over the cited prior art references.

Conclusion

In view of the foregoing, entry of this amendment and the allowance of this application with claims 1-25 are respectfully solicited.

In regard to the claims amended herein and throughout the prosecution of this application, it is submitted that these claims, as originally presented, are patentably distinct over the prior art of record, and that these claims were in full compliance with the requirements of 35

U.S.C. §112. Changes that have been made to these claims were not made for the purpose of patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes were made simply for clarification and to round out the scope of protection to which Applicant is entitled.

In the event that additional cooperation in this case may be helpful to complete its prosecution, the Examiner is cordially invited to contact Applicant's representative at the telephone number written below.

The Commissioner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account 50-0320.

Respectfully submitted,

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